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10/062,774	02/01/2002	Gaofeng Wang	INTPAX0104	3353

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EXAMINER

SPECTOR, DAVID N

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 06/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,774

Applicant(s)

WANG ET AL.

Examiner

David N. Spector

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: **DETAILED ACTION**.

DETAILED ACTION

Objections - Specification

1. The specification does not clearly explain **if all (or, if not all, which)** of the features/limitations attributed to a so-called "thin-film membrane" in the abstract of the instant disclosure (Page 11, Lines 3-12), are considered by applicant to be essential to the practice of the instant invention. In particular, it is not clear if the "membranes" disclosed in the specification are inherently limited to those which are "moveable" (Page 12, Line 4), and "can be actuated by external controlling forces" (Page 12, Lines 6-7). Clarification of these matters is required. Applicant should be careful not to introduce any new matter into the disclosure (*i.e., matter which is not supported by the disclosure as originally filed*).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.** In particular, claims 1-20 are rendered indefinite by repeated use of the phrase "freestanding membrane" at various places therein (e.g. *inter alia*, Claim 1, Line 2; Claim 2, Line 3; Claim 10, Line 1; Claim 11, Line 2; Claim 20, Line 1). There is no definition/explanation extant in the instant disclosure to adequately support the use of the phrase "freestanding membrane" as it appears in claims 1-20 therein. (*i.e. The difficulty here being that, while the phrase "freestanding membrane" is occasionally used as a term of art to indicate a membrane which initially-formed by the deposition of one or more thin layers of material onto the surface of a substrate, and which is then subsequently separated from the surface of the substrate by etching the substrate away, in whole, or in part. In the case where a substrate is*

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only partly etched away, the exposed (e.g. free) portion is still described as a "free-standing membrane". Such a definition allows a so called "freestanding membrane" to be attached to a supporting structure/frame. A standard dictionary, however, defines "freestanding" as 'unsupported' or 'standing without any support'.)

4. **Claims 2 and 12 are further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.** In particular, claims 2 and 12 are each rendered indefinite by the phrases "electromagnetic means for controlling and moving" [the freestanding membrane] (Claim 2, Line 2); or "controlling or moving [said freestanding membrane] with an electromagnetic means" (Claim 12, Lines 2-3) These phrases are indefinite inasmuch as nothing extant in the instant disclosure defines or discusses what is being controlled and/or the type of motion involved.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Independent claims 1, 10, 11, and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cushing (U.S. Patent No. 5,999,322).**

FOR EXAMINATION PURPOSES ONLY – In light of the rejections (above) of claims 1-20 under 35 U.S.C. §112, second paragraph, the intended meaning of the term "freestanding membrane" is taken to be consistent with the standard dictionary definition (e.g. a membrane which is standing or operating independently of anything else). Furthermore, the "membranes" as currently claimed are not assumed to be "moveable" and/or "actuated by external controlling forces" as noted in connection with the objections to the specification, above.

(a) In regard to independent claim 1, Cushing discloses (col. 4, ln. 39-46; FIG. 4) an optical device (e.g. a dielectric filter cavity) comprising a freestanding membrane comprising a plurality of thin-film layers represented by L(i), i = 1, 2, 3,...N; where N is a

positive odd integer (e.g. in the instant case, $N=7$); and said membrane having a mirror symmetrical layer structure (e.g. in the instant case, a seven-layer, mirror symmetric profile of HIGH INDEX QW, LOW INDEX QW, HIGH INDEX QW, HALF WAVE, HIGH INDEX QW, LOW INDEX QW, and HIGH INDEX QW layers, is clearly depicted in FIG. 4) relative to a middle layer $L(m)$ where $m=(N+1)/2$ (e.g. in the instant case $m=4$), and layer $L(m-j)$ and layer $L(m+j)$ having the same thickness, material composition, shape and size (col. 4, ln. 41-46), where $j=1, 2, 3, \dots, (N-1)/2$ (e.g. in the instant case $j=3$). Independent claim 1 is therefore clearly anticipated by Cushing.

(b) In regard to independent claim 10, Cushing discloses a freestanding membrane comprising a plurality of thin-film layers represented by $L(i)$, $i = 1, 2, 3, \dots, N$; where N is a positive odd integer (e.g. in the instant case, $N=7$); and said membrane having a mirror symmetrical layer structure (e.g. in the instant case, a seven-layer, mirror symmetric profile of HIGH INDEX QW, LOW INDEX QW, HIGH INDEX QW, HALF WAVE, HIGH INDEX QW, LOW INDEX QW, and HIGH INDEX QW layers, is clearly depicted in FIG. 4) relative to a middle layer $L(m)$ where $m=(N+1)/2$ (e.g. in the instant case $m=4$), and layer $L(m-j)$ and layer $L(m+j)$ having the same thickness, material composition, shape and size (col. 4, ln. 41-46), where $j=1, 2, 3, \dots, (N-1)/2$ (e.g. in the instant case $j=3$). Independent claim 10 is therefore clearly anticipated by Cushing.

(c) In regard to independent claim 11, Cushing implicitly discloses a method of manufacturing an optical device (e.g. a dielectric filter cavity- col. 4, ln. 39-46; FIG. 4) comprising forming [Emphasis Added] a freestanding membrane comprising a plurality of thin-film layers represented by $L(i)$, $i = 1, 2, 3, \dots, N$; where N is a positive odd integer (e.g. in the instant case, $N=7$); and configuring [Emphasis Added] said thin-film layers with mirror symmetrical layer structure (e.g. in the instant case, a seven-layer, mirror symmetric profile of HIGH INDEX QW, LOW INDEX QW, HIGH INDEX QW, HALF WAVE, HIGH INDEX QW, LOW INDEX QW, and HIGH INDEX QW layers, is clearly depicted in FIG. 4) relative to a middle layer $L(m)$ where $m=(N+1)/2$ (e.g. in the instant case $m=4$), and layer $L(m-j)$ and layer $L(m+j)$ having the same thickness, material composition, shape

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and size (col. 4, ln. 41-46), where $j=1, 2, 3, \dots, (N-1)/2$ (e.g. in the instant case $j=3$). Independent claim 11 is therefore clearly anticipated by Cushing.

(d) In regard to independent claim 20, Cushing implicitly discloses a method of manufacturing a freestanding membrane comprising forming [Emphasis Added] a plurality of thin-film layers represented by $L(i)$, $i = 1, 2, 3, \dots, N$; where N is a positive odd integer (e.g. in the instant case, $N=7$); and configuring [Emphasis Added] said membrane with a mirror symmetrical layer structure (e.g. in the instant case, a seven-layer, mirror symmetric profile of HIGH INDEX QW, LOW INDEX QW, HIGH INDEX QW, HALF WAVE, HIGH INDEX QW, LOW INDEX QW, and HIGH INDEX QW layers, is clearly depicted in FIG. 4) relative to a middle layer $L(m)$ where $m=(N+1)/2$ (e.g. in the instant case $m=4$), and layer $L(m-j)$ and layer $L(m+j)$ having the same thickness, material composition, shape and size (col. 4, ln. 41-46), where $j=1, 2, 3, \dots, (N-1)/2$ (e.g. in the instant case $j=3$). Independent claim 20 is therefore clearly anticipated by Cushing.

Other Remarks/Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Spector whose telephone number is (703) 305-1521. The examiner can normally be reached at this number Monday through Friday between 6:30 AM and 3:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps, can be reached on (703) 308-4883. The fax number for the organization where this application is assigned is (703) 308-7722.

June 20, 2003



David N. Spector
Primary Examiner